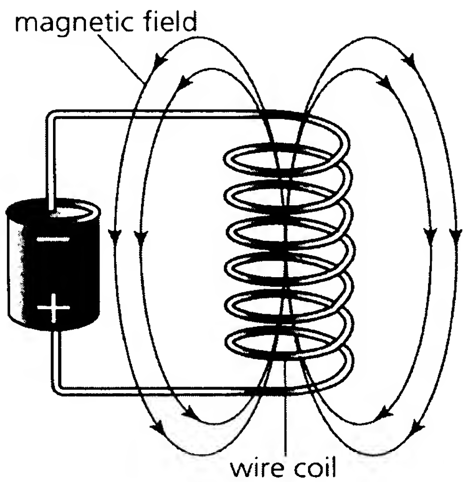
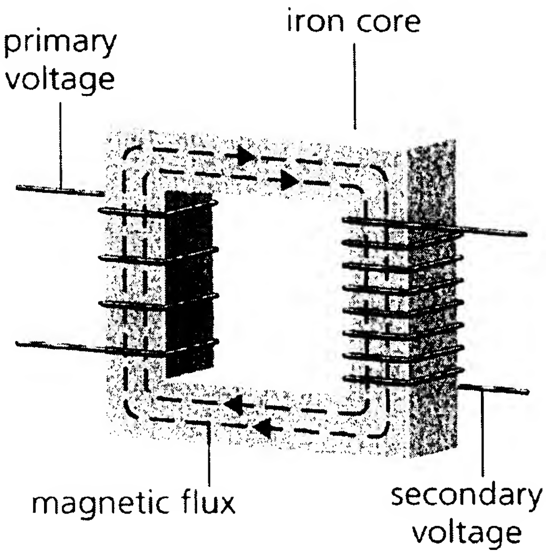
REMARKS/ARGUMENTS

The specification has been amended to capitalize trademarks, and the claims have been amended for clarity. No new matter has been entered.

Present claim 1 relates to an insulated magnet wire comprising a metallic magnet wire and a polymer composition insulation coating having a certain composition. An insulated magnetic wire according to the present invention has, by definition, the properties of a magnet and is thus able to produce a magnetic field, as in the following applications :





As explained in the pressent specification at pages 2ff, the insulated magnetic wire according to the present invention provides, in addition to the insulated electric wire requirements of resistivity, thermal resistance, etc, resistance against abrasion, mechanical stress and corrosion. This has been amply demonstrated by the Examples and Comparative Examples of record in the present specification, as will be set forth in more detail below.

The anticipation rejection over US 5,164,466 (El-Hibri) is traversed. El-Hibri describes a polymer composition comprising blends of poly(biphenyl ether sulfone) and

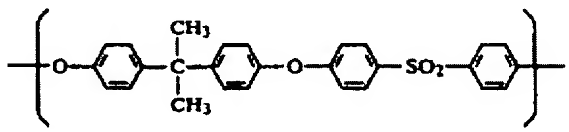
poly(aryl ether sulfone) comprising bisphenol A units useful in the manufacture of medical articles that can be steam-sterilized:

> **SUMMARY OF THE INVENTION**
>
> The general object of this invention is to provide blends of poly(biphenyl ether sulfones) having many of the base properties of the poly(biphenyl ether sulfone). Another object of this invention is to provide medical articles from blends of poly(biphenyl ether sulfones) which can be steam-sterilized while under stresses of 500 psi or greater without stress-cracking even in the presence of morpholine. Other objects appear hereinafter.
>
> The general objects of this invention can be attained with immiscible blends comprising (a) from about 25 to about 99 percent by weight of a poly(biphenyl ether sulfone) and (b) from about 1 to 75 percent by weight of a second poly(aryl ether sulfone) comprising bisphenol A. Other things being equal blends of polyarylether (2) and poly(aryl ether sulfone) (3) wherein poly(aryl ether sulfone) (3) comprises at least 60% of the two polymers have substantially the same properties as the more expensive poly(aryl ether sulfone) (3). The two polymers can also be used in weight percent ratios of poly(biphenyl ether sulfone) of from about 50 to 99 to poly(aryl ether sulfone) (2) of about 50 to 1 weight percent.

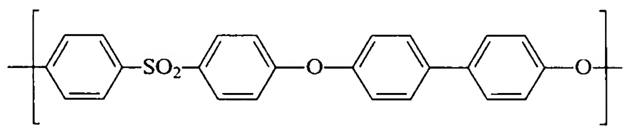
See col. 3, lines 1-25 of the reference. The reference discloses the good stress-crack resistance of these blends that makes them suitable for use under steam sterilization conditions (see col. 6, l. 29-31) and also suggests their use as electrical insulation for **electrical** conductors (see col. 6, l. 58-59). El-Hibri, however, makes absolutely no reference or suggestion to the use of these blends in a magnetic wire according to the present invention. As noted at specification page 2, first full paragraph, magnet wire insulation systems have substantially more stringent requirements as compared to mere dielectric insulators, and El-Hibri clearly is not suggestive of such use. Accordingly, the rejection over El-Hibri should be withdrawn.

Similarly, the rejection over Harris should be withdrawn. Harris describes a polymer composition comprising blends of two poly(aryl ethersulfone)s, the first one having a Tg >

240°c, and the second one having a Tg < 225°C (see col. 3, lines 30-45 of the reference). While the reference discloses a PSF of the following structure in claim 10 :



Harris, contrary to the assertion in the Official Action, does not disclose a PPSF as presently claimed comprising the following structural repeat unit:



Accordingly, the rejection over Harris should be withdrawn.

Given the deficiencies in both El-Hibri references cited in the Official Action (as recognized by the Office, neither disclose an insulated magnet wire) and Harris it is further clear that even their combination fails to disclose or suggest the presently claimed invention, as no insulated magnet wire is suggested where the polymer composition insulation coating comprises a blend of a polyphenylsulfone (PPSF) and a polysulfone (PSF) as claimed. In this regard, the closest embodiment to the present invention of record herein is actually described by Applicants at specification page 1, where a commercially available magnet wire with polyphenylsulfone (PPSF) resin insulation produced by Hanover Manufacturing Corporation is noted. However, this embodiment has already been clearly shown to be inferior to the presently claimed blend in the field of insulated magnet wires (see specification page 11):

TABLE 1 Selected Properties of Polyphenylsulfone and a Polyphenylsulfone Blend

Physical	Method	Units	Comparative Example 1 PSF	Control 1 PPSF	Example 1 70 wt. % PPSF/ 30 wt. % PSF Blend
Moisture Absorption	ASTM	-			
After 24 hrs	D-570	%	0.3	0.37	0.30
At Equilibrium	D-570	%	0.6	1.1	0.95
Specific Gravity	D-792		1.24	1.29	1.28
Mechanical					
Tensile Strength	D-638	MPa	70	70	70
Elongation at Break	D-638	%	50-100	90	60
Flexural Strength	D-790	MPa	105	105	105
Notched Izod Impact	D-256	J/m	69	694	265
Un-notched Izod	D-256	J/m	0 Breaks	0 Breaks	0 Breaks
Thermal					
Glass Transition Temp.		°C	185	220	185/220
Heat Deflection Temp.	D-648	°C	174	207	200
Electrical					
Dielectric Constant after 48 hours of conditioning at 23°C and 50% RH					
@ 1 MHz	D-150	-	3.1	3.45	3.40
Flammability					
Limiting Oxygen Index	D-2863	%	26	38	36

As shown above, the presently claimed PPSF/PSF blend absorbs less moisture and provides greater melt stability than PPSF alone and also shows a lower viscosity ratio with comparable superior flame resistance and mechanical strength. See specification page 10. Table 2 at specification page 12 further shows that the presently claimed PPSF/PSF blend demonstrates good flexibility, adhesion and elongation when coated on an aluminum wire as compared to the more expensive PPSF, and is resistant to heat shock, maintaining dielectric strength at temperatures up to 200 °C. Finally, Table 3 at specification page 14 shows the significant real world benefits of the invention by demonstrating that in a hot oil environment typical to insulated magnet wires the presently claimed blend unexpectedly offers the high performance properties of a PPSF resin even in view of the similarity between the temperature of this environment and the glass transition temperature of the PSF portion of the blend, and the

increased environmental sensitivity that would be expected for the PSF at this temperature (see specification page 13).

Accordingly, because the combination of El-Hibri with Harris does not suggest the presently claimed insulated magnet wire or the beneficial, unexpected properties obtained therewith, the obviousness rejection over these references should be withdrawn. Hilker and Gilliam both fail to make up for the basic deficiencies of these references, as they are cited for limited purposes directed to certain features of dependent claims. As nothing in the combination of references cited herein disclose an insulated magnet wire comprising a metallic magnet wire and a coating comprising a blend of a polyphenylsulfone (PPSF) and a polysulfone (PSF) as claimed Applicants respectfully request the reconsideration and withdrawal of the outstanding rejections, and the passage of this case to Issue.

Respectfully submitted,

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